



U.S. Department
of Transportation

Research and
Special Programs
Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

JUL 6 2004

DOT-E 11818
(SIXTH REVISION)

EXPIRATION DATE: May 31, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: National Aeronautics and Space Administration
Washington, DC

(See Appendix A to this document for a list of additional grantees)
2. PURPOSE AND LIMITATION:
 - a. This exemption authorizes the transportation in commerce of certain non-DOT specification containers containing certain Division 2.1, 2.2 and 2.3 liquefied and compressed gases. This exemption provides no relief from any Hazardous Materials Regulation (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.301(f) in that containers are not fitted with pressure relief devices; §§ 173.302a(a)(1), 173.304a(a)(2) and 175.3 in that non-DOT specification packagings are authorized.
5. BASIS: This exemption is based on the application of National Aeronautics and Space Administration (NASA) dated April 7, 2004, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Ammonia, anhydrous	2.2/2.3*	UN1005	/A
Ethane	2.1	UN1035	N/A
Methane, compressed or Natural gas, compressed (with high methane content)	2.1	UN1971	N/A
Nitrogen, compressed	2.2	UN1066	N/A
Nitrogen trifluoride, compressed	2.2	UN2451	N/A
Propane see also Petroleum gases, liquefied	2.1	UN1978	N/A
Propylene see also Petroleum gases, liquefied	2.1	UN1077	N/A

* Division 2.3 for international transportation. Division 2.2 as an alternate when only domestic transportation is involved.

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings prescribed are non-DOT specification containers which are installed in spacecraft or components of spacecraft and over-packed in a wood or metal box constructed in accordance with drawings on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). The non-DOT specification containers are without valves or pressure relief devices and described as follows:

1. Heat pipes or variable conductance heat pipes, constructed of axially grooved tubing (aluminum alloy 6063 or 300 series stainless steel or combination thereof) with an end cap and fill tube welded to opposing ends, not to exceed 1 liter in volume.

2. Capillary pumped loops constructed of 6061-T6 aluminum or 300 series stainless steel or combination thereof, not to exceed 144 inches in length and 36 inches wide, and not to exceed 4 liters in volume.

3. Reservoirs constructed of 6061 aluminum or 300 series stainless steel, not to exceed 4 liters in volume. The maximum size of the reservoir is 6 inches in diameter and 24 inches in length.

b. TESTING - Welds must be radiographically inspected to MIL-STD-2219 or NAS1514 specification. Each non-DOT specification container must be pneumatically tested to pressure 1.5 times the vapor pressure of the lading at 100°C (212°F) without failure and must have minimum burst pressure of at least 1,400 psig.

c. OPERATIONAL CONTROLS -

1. Each heat pipe may not contain more than 0.25 pounds of anhydrous ammonia.

2. At 54.4°C (130°F), the design burst pressure of the heat pipes must be at least 4 times the vapor pressure of the lading.

3. Emergency response information provided with the shipment and available via an emergency response telephone number must indicate that the heat pipes are not fitted with pressure relief devices and provide appropriate guidance in case receptacles are exposed to fire.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this exemption who receives a package covered by this exemption may reoffer it for transportation provided no modifications or changes are made to the package and it is reoffered for transportation in conformance with this exemption and the HMR.

b. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

c. MARKING - The all metal container containing the FOS must be marked on two sides in letters at least 2 inches high on a contrasting background, "DOT-E 11818."

d. Transportation of Division 2.1 (flammable gases) and Division 2.3 (gases which are poisonous by inhalation) materials are not authorized aboard cargo vessel or aircraft unless specifically authorized in the Hazardous Materials Table (§ 172.101).

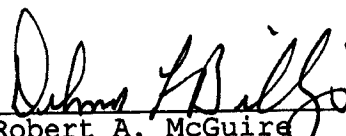
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, cargo vessel, cargo aircraft only.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this exemption. The shipper must furnish a current copy of this exemption to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued in Washington, D.C.:

bn 
Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

JUL 6 2004
(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.
Attention: DHM-31.

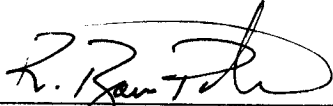
Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: KFW/sln

JUL 28 2004

The following are hereby granted party status to this exemption based on their application(s) submitted in accordance with § 107.107 or § 107.109, as appropriate:

Company Name City/State	Application Date	Issue Date	Expiration Date
Johns Hopkins University Applied Physics Lab. Laurel, MD	Aug 05, 2003	Aug 11, 2003	Aug 31, 2004
Orbital Sciences Corporation Dulles, VA	Jul 14, 2004	JUL 28 2004	May 31, 2006
Raytheon Corporation El Segundo, CA	Jun 17, 2004	Jul 6, 2004	May 31, 2006
Swales Aerospace Inc. Beltsville, MD	Jul 13, 2004	Jul 20, 2004	May 31, 2006



Robert A. McGuire

fa Associate Administrator for
Hazardous Materials Safety